

Impact of Physical Activity on the Development of the Most Common Chronic Diseases in Spain: A Systematic Review and Meta-Analysis

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Citation

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REVIEW TITLE AND BASIC DETAILS

Review title

Impact of Physical Activity on the Development of the Most Common Chronic Diseases in Spain: A Systematic Review and Meta-Analysis

Condition or domain being studied

Physical Activity Level; Chronic Disease

Rationale for the review

The level of physical activity is associated with the development and prevention of chronic diseases such as diabetes, cancer, and chronic obstructive pulmonary disease (COPD), among others. The social return on investment in physical activity, due to the reduction in the incidence of these diseases, is of great interest for public policy.

To analyze the social return on investment in physical activity in Spain, it is necessary to obtain data on the risk associated with engaging in or lacking physical activity among Spanish people in relation to the development of the most common diseases in the country.

Review objectives

Analyze the risk associated with level of physical activity in the development (prevention/risk) of the most common chronic diseases in Spain.

Keywords

Physical activity level; Chronic disease; Risk reduction

Country

Spain

ELIGIBILITY CRITERIA

Population

Included

- 1) Healthy people.
- 2) People living in Spain.

Excluded

- 1) Professional or elite population

Intervention(s) or exposure(s)

Included

Physical activity

Level of physical activity and sport.

Excluded

Studies included have to measure level of physical activity or sport specifically. So, "gym users" or "sport people" is not enough to be included in this systematic review.

Comparator(s) or control(s)

Included

PICO tags selected: Physical activity

The comparator is level of physical activity or sports. The studies included in this systematic review must compare results between groups of different levels of physical activity or sports, measured as it has been mentioned in the exposure section.

Study design

Only nonrandomized study types will be included.

Included

Prospective observational cohort studies

Excluded

Randomized clinical controlled trials.

Cross-sectional studies.

Context

Studies that have been conducted in Spain

SIMILAR REVIEWS

Check for similar records already in PROSPERO

PROSPERO identified a number of existing PROSPERO records that were similar to this one (last check made on 5 March 2025). These are shown below along with the reasons given by that the review team for the reviews being different and/or proceeding.

- Does sports club participation contribute to accelerometer-measured moderate to vigorous physical activity in children and adolescents? A systematic review [published 17 March 2021] [CRD42021235374]. The review was judged **not to be similar**
- Instruments to assess the level of physical activity in adults during the SARS-CoV-2 pandemic: a systematic review [published 19 October 2021] [CRD42021274627]. The review was judged **not to be similar**
- The effect of Domestic Physical Activity on (NCDs) risk, acute diseases risk, cancer risk, and all-cause mortality: a meta-analysis [published 12 December 2023] [CRD42023487921]. The review was acknowledged as **similar** but the authors opted to continue because *there are differences in population, the review looks at additional or different outcomes, there are differences in intervention or comparator*. The authors also noted: "We are going to include only studies conducted in Spain because our final aim is to calculate the social return of investment in physical activity in Spain. Moreover, we are including other types of physical activity measures and we are including studies that assess other outcomes such as low back pain or osteoarthritis"

TIMELINE OF THE REVIEW

Date of first submission to PROSPERO

This record has not been submitted.

Review timeline

Start date: 5 March 2025. End date: 31 December 2025.

Date of registration in PROSPERO

This record has not been published.

AVAILABILITY OF FULL PROTOCOL

Availability of full protocol

A full protocol has not been written.

SEARCHING AND SCREENING

Search for unpublished studies

Only published studies will be sought.

Main bibliographic databases that will be searched

The main databases to be searched are *PubMed*, *SCI - Science Citation Index* and *SSCI - Social Science Citation Index*.

Search language restrictions

There are no language restrictions.

Search date restrictions

There are no search date restrictions.

Other methods of identifying studies

Other studies will be identified by: *looking through all the articles that cite the papers included in the review ("snowballing")* and *reference list checking*.

Link to search strategy

A full search strategy has been uploaded to PROSPERO. The PDF may be accessed through this link <https://www.crd.york.ac.uk/PROSPERO/PROSPEROFILES/a0df8dee3a60f4e41f0907f240c00c10.pdf>.

Selection process

Studies will be screened independently by at least two people (or person/machine combination) with a process to resolve differences.

Other relevant information about searching and screening

None

DATA COLLECTION PROCESS

Data extraction from published articles and reports

Data will be extracted independently by at least two people (or person/machine combination) with a process to resolve differences.

Authors will be asked to provide any required data not available in published reports.

Study risk of bias or quality assessment

Risk of bias will be assessed using: *Newcastle-Ottawa*

Data will be assessed by one person (or a machine) and checked by at least one other person (or machine).

Additional information will be sought from study investigators if required information is unclear or unavailable in the study publications/reports.

Reporting bias assessment

Risk of bias due to missing results will not be assessed

Certainty assessment

Certainty of findings will not be assessed

OUTCOMES TO BE ANALYSED

Main outcomes

Hypertension

Low Back Pain

Hypercholesterol

Osteoarthritis

Chronic Obstructive Pulmonary Disease

Diabetes

Breast cancer

Colon cancer

Depression
Dementia
Stroke
Heart disease

Additional outcomes

There are no additional outcomes.

PLANNED DATA SYNTHESIS

Strategy for data synthesis

For primary analyses, pooled relative risks (RRs) and 95% confidence intervals (CIs) will be calculated using a random-effects model. Statistical heterogeneity among studies will be assessed using Cochran's Q test and the I^2 statistic. A p-value of less than 0.10 in the Q test will be considered indicative of significant heterogeneity. The I^2 statistic will be used to quantify the proportion of total variability attributable to between-study heterogeneity, with values above 50% indicating moderate-to-high heterogeneity. If I^2 exceeds 50%, a sensitivity analysis will be conducted to explore potential sources of heterogeneity and assess its impact on the results.

Since this review includes studies analyzing the incidence of multiple pathologies, a separate meta-analysis will be conducted for each pathology, provided that at least two studies contribute relevant data. If a sufficient number of studies are available, subgroup analyses will be performed based on factors such as the geographical location of the study, participant age, type of physical activity assessed, adjustment for body mass index (BMI), and other relevant methodological variables.

Publication bias will be evaluated using Egger's and Begg's tests and represented through funnel plots.

CURRENT REVIEW STAGE

Stage of the review at this submission

Review stage	Started	Completed
Pilot work	✓	
Formal searching/study identification	✓	
Screening search results against inclusion criteria		
Data extraction or receipt of IPD		
Risk of bias/quality assessment		
Data synthesis		

Review status

The review is currently planned or ongoing.

Publication of review results

Results of the review will be published in English and Spanish.

REVIEW AFFILIATION, FUNDING AND PEER REVIEW

Review team members

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No conflict of interest declared.

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No conflict of interest declared.

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No conflict of interest declared.

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Funding source

Additional non-commercial funding information

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Peer review

There has been no peer review of this planned review.

ADDITIONAL INFORMATION

Review conflict of interest

Declared individual interests are recorded under team member details.. No additional interests are recorded for this review.

Medical Subject Headings

Chronic Disease; Exercise; Humans; Spain; Sports

PROSPERO version history

No preview available

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